UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,243	01/30/2004	Jacek Stachurski	TI-35418	8176

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EXAMINER
SAINT CYR, LEONARD

ART UNIT	PAPER NUMBER
2626	

NOTIFICATION DATE	DELIVERY MODE
09/16/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _07 July 2009_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1 - 10_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1 - 10_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _08/05/04_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on

07/07/09 has been entered.

Response to Arguments

2.   Applicant's arguments filed 07/07/09 have been fully considered but they are not

persuasive.

Applicant argues that Gersho and Honda teach away from each other; do not

suggest motivation for modifying the reference or to combine the reference teachings

(Amendment, page 6).

The examiner disagrees, since Gersho teaching voice or speech classification by

disclosing ("for every frame, a speech classifier module classifies the speech as

stationary unvoiced, steady state or transition speech"; col.13, lines 22 – 25; figs 1A,

and 1B col.18, lines 17 - 21); and Honda discloses " When a sound is discriminated to

be a voiced sound V, the residual waveform e(n) inputted at the terminal is supplied

through the switch to a phase-equalizing filter " (col.7, lines 64 – 66).

Thus, Honda shows motivation for modifying the speech or voice classification of Gersho.

Applicant argues that neither Gersho nor Honda teach or suggest estimating a zero-phase equalization filter coefficient and a bandpass voicing strengths in a frequency band; removing linear phase from the zero-phase equalization filter; setting the phase of the equalization filter coefficient to a zero, wherein the equalization filter coefficient corresponds to a low-voiced harmonics identified by bandpass voicing estimate; and adding back the linear component to the zero-phase equalization filter (Amendment, page 6).

The examiner disagrees, and points out that Honda in view of Gersho teach all **limitations of the new amended claims**. Please, see claims rejection below.

Claim Rejections - 35 USC § 101

3.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 - 5 are rejected under 35 USC 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps to be performed, a statutory process under 35 USC 101 must be tied to another statutory category (such as a manufacture or a machine) or transform underlying subject matter (such as an article or material) to a different state or

thing. The steps in those claims can be performed manually without the use of a particular machine. Those claims could be done in a piece of paper, wherein digital signal processing (DSP) theory can be used to estimate the filter coefficient and a bandpass voicing strengths; removing and adding linear phase to the zero-phase equalization filter based on bandpass voicing estimated. Thus, **Claims 1 - 5** do not define a statutory process.

Claim Rejections - 35 USC § 103

4.   The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 – 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gersho et al., (US Patent 6,233,550), in view of Honda (US Patent 5,495,556).

As per claim 1, Gersho et al., teach a method of speech encoding of a digital signal processor, comprising:

estimating a filter coefficient ("filtering using a linear prediction filter") and a bandpass voicing strengths in a frequency band ("for every frame, a speech classifier module classifies the speech as stationary unvoiced, steady state or transition speech"; figs 1A, and 1B; col.5, lines 51 – 54; col.13, lines 22 – 25; col.18, lines 17 – 21);

removing linear phase from the filter ("the initial linear phase was simply set to zero" is considered as removing the linear phase; col.15, lines 24 – 26);

adding back the linear component to the filter ("the initial linear phase has to be estimated and used in the synthetic phase model"; col.15, lines 30 – 33).

However Gersho et al., do not specifically disclose estimating a zero-phase equalization filter coefficient; setting the phase of the equalization filter coefficient to a zero, wherein the equalization filter coefficient corresponds to a low-voiced harmonics identified by bandpass voicing estimate.

Honda teaches that in **the phase equalizing-analyzing part coefficients of a phase equalizing filter for rendering the phase characteristic of the speech into a zero phase and reference time points of phase equalization are computed** (col.4, lines 5 – 9). When a sound is discriminated to be a voiced sound V, the residual waveform e(n) inputted at the terminal is supplied through the switch to a phase-equalizing filter " (col.7, lines 64 – 66).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to render the phase characteristic of the speech into a zero phase as taught by Honda in Gersho et al., because that would help classify the speech signal (col.7, lines 42 – 45).

As per claim 2, Gersho et al., in view of Honda further disclose identified bandpass voicing uses the frequency bands 0-500 Hz, 500-1000 Hz, 1000-2000 Hz, 2000-3000 Hz, and 3000-4000 Hz (Gersho et al., see figures; figs 1A, and 1B).

As per claim 3, Gersho et al., in view of Honda further disclose that the frequency band is a pre-determined frequency band (Gersho et al., see figures, where pre-determined frequency bands are shown; figs 1A, and 1B).

As per claim 4, Gersho et al., in view of Honda do not specifically teach waveform shifting by placing an estimated pitch peak at the start of the equalization filter coefficient. **However, since Gersho et al., disclose** that from the waveform difference between FIG. 3B and FIG. 3C it is evident that the DFT measured phases govern two aspects of the speech waveform. **First, they control the location of the pitch epochs**, and second they define the detailed structure of the pitch pulse. Hence, the DFT measured phase, .phi..sub.k.sup.h, can be broken into two terms: a constant linear phase k.theta..sub.0, and a dispersion phase .psi..sub.k.sup.h. **The linear phase introduces a time shift which places an epoch of r(t) at: theta/ (2pi f)** [col.6. lines 45 – 60). One having ordinary skill in the art at the time the invention was made would have found it obvious to place the estimated pitch peak at the start of the equalization filter coefficient in Gersho et al., in view of Honda, because that would ensure that the modified residual signal will give speech quality as good as the original one (col.22, lines 44 – 46).

As per claim 5, Gersho et al., in view of Honda further disclose the bandpass voicing estimate is utilized for improving performance of at least one of zero-phase equalization or selective zero-phase equalization (**"When a sound is discriminated to be a voiced sound V**, the residual waveform e(n) inputted at the terminal **is supplied through the switch to a phase-equalizing filter "**; col.7, lines 64 – 66).

As per claim 6, Gersho et al., teach an apparatus of speech encoding of a digital

signal processor, comprising:

means ("filter") for estimating a filter coefficient ("filtering using a linear prediction

filter") and a bandpass voicing strengths in a frequency band ("for every frame, a

speech classifier module classifies the speech as stationary unvoiced, steady state or

transition speech"; figs 1A, and 1B; col.5, lines 51 – 54; col.13, lines 22 – 25; col.18,

lines 17 – 21);

means ("carried out at the encoder") for removing linear phase from the filter ("the

initial linear phase was simply set to zero" is considered as removing the linear phase;

col.15, lines 24 – 26; col.17, lines 21 - 28);

means ("the encoder uses the linear phase") for adding back the linear component

to the filter ("the initial linear phase has to be estimated and used in the synthetic phase

model"; col.14, lines 63 – 67; col.15, lines 30 – 33).

However Gersho et al., do not specifically disclose estimating a zero-phase

equalization filter coefficient; means setting the phase of the equalization filter

coefficient to a zero, wherein the equalization filter coefficient corresponds to a low-

voiced harmonics identified by bandpass voicing estimate.

Honda teaches that in **the phase equalizing-analyzing part coefficients of a**

phase equalizing filter for rendering the phase characteristic of the speech into a

zero phase and reference time points of phase equalization are computed (col.4,

lines 5 – 9). When a sound is discriminated to be a voiced sound V, the residual

waveform e(n) inputted at the terminal is supplied through the switch to a phase-equalizing filter " (col.7, lines 64 – 66).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to render the phase characteristic of the speech into a zero phase as taught by Honda in Gersho et al., because that would help classify the speech signal (col.7, lines 42 – 45).

As per claim 7, Gersho et al., in view of Honda further disclose identified bandpass voicing uses the frequency bands 0-500 Hz, 500-1000 Hz, 1000-2000 Hz, 2000-3000 Hz, and 3000-4000 Hz (Gersho et al., see figures; figs 1A, and 1B).

As per claim 8, Gersho et al., in view of Honda further disclose that the frequency band is a pre-determined frequency band (Gersho et al., see figures, where pre-determined frequency bands are shown; figs 1A, and 1B).

As per claim 9, Gersho et al., in view of Honda do not specifically teach waveform shifting by placing an estimated pitch peak at the start of the equalization filter coefficient. **However, since Gersho et al., disclose** that from the waveform difference between FIG. 3B and FIG. 3C it is evident that the DFT measured phases govern two aspects of the speech waveform. **First, they control the location of the pitch epochs**, and second they define the detailed structure of the pitch pulse. Hence, the DFT measured phase, .phi..sub.k.sup.h, can be broken into two terms: a constant linear

phase k.theta..sub.0, and a dispersion phase .psi..sub.k.sup.h. **The linear phase introduces a time shift which places an epoch of r(t) at: theta/ (2pi f)** [col.6. lines 45 – 60). One having ordinary skill in the art at the time the invention was made would have found it obvious to place the estimated pitch peak at the start of the equalization filter coefficient in Gersho et al., in view of Honda, because that would ensure that the modified residual signal will give speech quality as good as the original one (col.22, lines 44 – 46).

As per claim 10, Gersho et al., in view of Honda further disclose the bandpass voicing estimate is utilized for improving performance of at least one of zero-phase equalization or selective zero-phase equalization ("**When a sound is discriminated to be a voiced sound V**, the residual waveform e(n) inputted at the terminal **is supplied through the switch to a phase-equalizing filter** "; col.7, lines 64 – 66).

Conclusion

5.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD SAINT CYR whose telephone number is (571) 272-4247. The examiner can normally be reached on Mon- Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or (571)-272-1000.

LS
09/05/09
/Leonard Saint-Cyr/
Examiner, Art Unit 2626